

VII. De Sectione Anguli, Autore A. de Moivre,  
R. S. S.

INeunte Anno 1707, incidi in Methodum quâ, Æ-  
quatione datâ hujus formæ.

$$ny + \frac{nn-1}{2 \times 3} Ay^3 + \frac{nn-9}{4 \times 5} By^5 + \frac{nn-25}{6 \times 7} Cy^7$$

&c. = a,

Vel istius,

$$ny + \frac{1-nn}{2 \times 3} Ay^3 + \frac{9-nn}{4 \times 5} By^5 + \frac{25-nn}{6 \times 7} Cy^7$$

&c. = a; ubi quantitates A, B, C, &c. repræsentant  
Coefficientes Terminorum præcedentium, Radices de-  
terminavi ad hunc modum.

Posito  $a + \sqrt{aa+1} = v$  in primo casu.

$a + \sqrt{aa-1} = v$  in secundo.

$$\text{Erit } y = \frac{1}{2} \sqrt[n]{v} - \frac{\frac{1}{2}}{\sqrt[n]{v}} \text{ in primo casu.}$$

$$y = \frac{1}{2} \sqrt[n]{v} + \frac{\frac{1}{2}}{\sqrt[n]{v}} \text{ in secundo.}$$

Solutiones autem istæ insertæ fuerunt in Philosophicis  
Transactionibus, Num. 309, pro mensibus *Jan. Feb.*  
*Mart.* ejusdem anni.

Jam quibus perspectum erit quo artificio Formulæ  
istæ inventæ fuerint, his procul dubio patebit aditus ad  
demonstrationem sequentis Theorematis.

Sit

Sit  $x$  Sinus Versus Arcus cujuslibet.

$t$  Sinus Versus Arcus alterius.

$r$  Radius Circuli.

Sitque Arcus prior ad posteriorum ut  $1$  ad  $n$ , Tunc, assumptis binis Æquationibus quas cognatas appellare licet,

$$1 - 2z'' + z''^2 = -2z''t$$

$$1 - 2z + z^2 = -2zx.$$

Expunctoque  $z$ , orietur Æquatio qua Relatio inter  $x$  &  $t$  determinatur.

### COROLLARIUM I.

Si Arcus posterior sit Semicircumferentia, Æquationes erunt.

$$1 + z'' = 0$$

$$1 - 2z + z^2 = -2zx.$$

e quibus si expungatur  $z$ , orietur Æquatio quâ determinantur Sinus Versi Arcuum qui sint ad Semicircumferentiam, semel, ter, quinquies, &c. sumptam, ut  $1$  ad  $n$ .

### COROLLARIUM II.

Si Arcus posterior sit Circumferentia, Æquationes erunt

$$1 - z'' = 0$$

$$1 - 2z + z^2 = -2zx.$$

e quibus si expungatur  $z$ , orietur Æquatio quâ determinantur Sinus Versi Arcuum qui sint ad Circumferentiam, semel, bis, ter, quater, &c. sumptam, ut  $1$  ad  $n$ .

### COROLLARIUM III.

Si Arcus posterior sit 60 Graduum, Æquationes erunt

$$\begin{aligned} 1 - z'' + z^{2''} &= 0 \\ 1 - 2z + zz &= -2z\kappa. \end{aligned}$$

e quibus si expungatur  $z$ , orietur Æquatio quâ determinantur Sinus Verſi Arcuum qui ſint ad Arcum 60 Graduum.

per  $\left\{ \begin{array}{l} 1, 7, 13, 19, 25 \\ 5, 11, 17, 23, 29 \end{array} \right\}$  &c. } multiplicatum  
ut 1 ad  $n$ .

Si Arcus poſterior ſit 120 Graduum, Æquationes erunt

$$\begin{aligned} 1 + z'' + z^{2''} &= 0 \\ 1 - 2z + zz &= -2z\kappa. \end{aligned}$$

e quibus ſi expungatur  $z$ , orietur Æquatio quâ determinantur Sinus Verſi Arcuum qui ſint ad Arcum 120 Graduum.

per  $\left\{ \begin{array}{l} 1, 4, 7, 10, 13 \\ 2, 5, 8, 11, 14 \end{array} \right\}$  &c. } multiplicatum  
ut 1 ad  $n$ .

*Novemb.* 15.

1722.